

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1-2 (cancelled)

Claim 3 (Currently Amended): A method as set forth in claim [20] 17, wherein the restriction function $\gamma_{SF}(m,l)$ is produced in dependence in respect of time on the noise estimate which is variable in respect of time of the dynamic noise component.

Claim 4 (previously presented): A method as set forth in claim 3 wherein the restriction function $\gamma_{SF}(m,l)$ is produced in dependence in respect of time on the instantaneous noise power which is variable in respect of time of the noise estimate.

Claim 5 (Currently Amended): A method as set forth in claim [20] 17, wherein the restricted filter function is produced in one method step.

Claim 6 (previously presented): A method as set forth in claim 17, wherein filtering of the noisy audio signal is executed in the time domain, in the frequency domain or in another mathematically describable signal space.

Claim 7 (Currently Amended): A method as set forth in claim [20] 17, wherein the unrestricted filter function $H_G^{dyn}(m,l)$ is determined in accordance with an approach according to Wiener, in which the mean quadratic error between useful signal and estimate is used as the approximation criterion.

Claim 8 (Currently Amended): A method as set forth claim [20] 17, wherein the unrestricted filter function $H_G^{dyn}(m,l)$ is determined in accordance with the amplitude subtraction method.

Claim 9 (Currently Amended): A method as set forth claim [20] 17, wherein the noisy audio signal $x(k)$ is transformed into the frequency domain, then the noise component $N(m,l)$ of the transformed noisy audio signal $X(m,l)$ is estimated, the unrestricted filter function $H_G^{dyn}(m,l)$ and the restriction function $\gamma_{SF}(m,l)$ is produced and the restricted filter function H_b is formed therefrom, then the transformed noisy audio signal $X(m,l)$ is multiplied by the restricted filter function H_b and then transformed back into the time domain.

Claim 10 (Currently Amended): A method as set forth in claim [20] 17, wherein the filter function $H_G^{dyn}(m,l)$ is determined by means of a known approach utilizing an estimate $\hat{\Phi}_{NN}(m,l)$ of the instantaneous auto-noise power density.

Claim 11 (previously presented): A method as set forth in claim 10 wherein the estimate $\hat{\Phi}_{NN}(m,l)$ of the instantaneous auto-noise power density is determined from a weighting of the estimate $\hat{\Phi}_{NN}(m)$ with a time-dependent weighting factor $\alpha(m,l)$ to give:

$$\hat{\Phi}_{NN}(m,l) = \alpha(m,l) \cdot \hat{\Phi}_{NN}(m).$$

Claim 12 (previously presented): A method as set forth in claim 11 wherein the weighting factor $\alpha(m,l)$ is ascertained in accordance with:

$$\alpha(m,l) = \frac{\min(|X(m,l)|^2)}{\min(\hat{\Phi}_{NN}(m))}$$

wherein $X(m,l)$ is a representation of the noisy audio signal.

Claim 13 (previously presented): A method as set forth in claim 12 wherein the dynamic restriction function $\gamma_{SF}(m,l)$ is determined as:

$$\gamma_{SF}(m,l) \sim (\alpha(m,l))^\beta, \text{ with } -5 < \beta < 5.$$

Claim 14 (previously presented): A method as set forth in claim 13 wherein

$$\beta = -1/2.$$

Claim 15 (cancelled)

Claim 16 (cancelled)

Claim 17 (currently amended): A method of reducing random, continuous, non-stationary noise in a noisy audio signal, comprising:

establishing a dynamic noise component from the noisy audio signal;
establishing a dynamic signal component from the noisy audio signal;
dynamically determining a filter function in response to the dynamic signal component and the dynamic noise component;
dynamically limiting the filter function in response to the dynamic noise component; and

applying the filter function to the noisy audio signal

and further comprising the steps of:

producing a noise estimate, which describes the time-dependent change of the dynamic noise component,

determining an unrestricted filter function $H_G(m,l)$ from the noise estimate;

producing a restriction function $\gamma_{SF}(m,l)$ from the noise estimate;

establishing a restricted filter function $H_G^{dyn}(m,l)$;

setting the restricted filter function $H_G^{dyn}(m,l)$ equal to the greater of the unrestricted filter function $H_G(m,l)$ or the restriction function $\gamma_{SF}(m,l)$; and

filtering the noisy audio signal with the restricted filter function $H_G^{dyn}(m,l)$;

wherein m is a discrete spectral frequency or equivalent thereof, and l is a discrete time of a signal block in the case of block-wise signal processing.

Claim 18 (previously presented): The method of claim 17, further comprising:
sampling an analog audio signal having random, continuous, non-stationary
noise; and

obtaining the noisy audio signal from the sampled analog audio signal.

Claim 19 (previously presented): The method of claim 17, wherein the noisy
audio signal is present in discrete form.

Claim 20 (Cancelled)

Claim 21 (currently amended): The method of claim [20] 17, wherein a block
includes one or more samples. ~~may also include only one sample value.~~